

1 **Claims**

2 **We claim:**

- 3 1. A stabilized phenolic resole resin composition comprising a phenolic resin and an
4 effective stabilizing amount of an ortho ester.
5
- 6 2. The stabilized phenolic resole resin composition of claim 1 which also contains a
7 solvent selected from the group consisting of aromatic hydrocarbon solvents, ester
8 solvents, and mixtures thereof.
9
- 10 3. The stabilized phenolic resole resin composition of claim 2 wherein the stabilized
11 phenolic resole resin composition comprises a polybenzylic ether phenolic resin
12 prepared by reacting an aldehyde with a phenol such that the molar ratio of
13 aldehyde to phenol is from 1.1:1 to 3:1 in the presence of a divalent metal catalyst.
14
- 15 4. The stabilized phenolic resole resin composition of claim 3 wherein the phenol
16 used to prepare the phenolic resole resin of the stabilized phenolic resole resin
17 composition is selected from the group consisting of phenol, bisphenol, o-cresol, p-
18 cresol, and mixtures thereof.
19
- 20 5. The stabilized phenolic resole resin composition of claim 4 wherein the aldehyde
21 used to prepare the phenolic resin of the stabilized phenolic resole resin
22 composition is formaldehyde.
23
- 24 6. The stabilized phenolic resole resin composition of claim 5 wherein the ortho ester
25 is selected from the group consisting of triethyl orthoformate, trimethyl
26 orthoformate, and mixtures thereof.
27

- 1 7. The stabilized phenolic resole resin composition of claim 6 wherein the amount of
2 solvent in the resin composition is from 20 weight percent to 80 weight percent
3 based upon the weight of the phenolic resin composition.
4
- 5 8. The stabilized phenolic resole resin composition of claim 7 wherein the amount of
6 ortho ester is from about 0.1 weight percent to about 1.5 weight percent based upon
7 the weight of the phenolic resin.
8
- 9 9. The stabilized phenolic resole resin composition of claim 6 wherein the phenolic
10 resole resin of the stabilized phenolic resole resin composition is an alkoxy-
11 modified benzylic ether phenolic resole resin and the catalyst used to prepare said
12 resin is a divalent zinc salt.
13
- 14 10. A foundry binder system comprising the phenolic resole resin component of claim
15 1, 2, 3, 4, 5, 6, 7, 8, or 9 and a polyisocyanate component.
16
- 17 11. A foundry mix comprising:
18
19 A. a major amount of an aggregate; and
20
21 B. an effective bonding amount of the binder system of claim 10.
22
- 23 12. A process for preparing a foundry shape which comprises:
24
25 (a) forming a foundry mix as set forth in claim 10;
26
27 (b) forming a foundry shape by introducing the foundry mix obtained from
28 step (a) into a pattern;
29

1 (c) contacting the shaped foundry binder system with a tertiary amine
2 catalyst; and

3

4 (d) removing the foundry shape of step (c) from the pattern.

5

R126 13
6 12

12
The process of claim ~~11~~ wherein the tertiary amine catalyst is a gaseous
tertiary amine catalyst.

7

8

R126 14
9 13

The process of claim 12 wherein the amount of said binder composition is
about 0.6 percent to about 5.0 percent based upon the weight of the aggregate.

10

R126 15
11 12

12
The process of claim ~~14~~ wherein the tertiary amine catalyst is a liquid tertiary
amine catalyst.

13

R126 16
14 15

The process of casting a metal which comprises:

15

16

17

(a) preparing a foundry shape in accordance with claim 12;

18

19

(b) pouring said metal while in the liquid state into and a round
said shape;

20

21

22

(c) allowing said metal to cool and solidify; and

23

24

(d) then separating the molded article.